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<b>(21) International Application Number:</b> PCT/EP94/00278 <b>(22) International Filing Date:</b> 29 January 1994 (29.01.94) <b>(30) Priority Data:</b> 9302130.1      3 February 1993 (03.02.93)      GB  <b>(71) Applicant (for AU BB CA GB IE LK MN MW NZ SD only):</b> UNILEVER PLC [GB/GB]; Unilever House, Blackfriars, London EC4P 4BQ (GB).  <b>(71) Applicant (for all designated States except AU BB CA GB IE LK MN MW NZ SD):</b> UNILEVER N.V. [NL/NL]; Weena 455, NL-3013 AL Rotterdam (NL).  <b>(72) Inventor:</b> BOWSER, Paul, Anthony; Dorset House, Latchford Road, Gayton, Wirral, Merseyside L60 3RW (GB).  <b>(74) Agent:</b> BRYANT, Tracey; Unilever plc, Patent Division, Colworth House, Sharnbrook, Bedford MK44 1LQ (GB).		<b>(81) Designated States:</b> AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, ES, FI, GB, HU, JP, KP, KR, KZ, LK, LU, LV, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SK, UA, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>Without international search report and to be republished upon receipt of that report.</i>
<b>(54) Title:</b> CLEANSING COMPOSITION  <b>(57) Abstract</b>  The invention provides a cleansing composition, which comprises in addition to water, (a) from 10 to 30 % by weight of one or more C <sub>6</sub> to C <sub>16</sub> acyl glycolates and (b) from 5 to 25 % by weight of one or more co-surfactants, such as acyl taurates, isethionates, sarcosinates and sulphosuccinates. The cleansing compositions are primarily intended to be used as personal washing products, such as facial wash foams, bath foams and hair shampoos.		

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CLEANSING COMPOSITIONFIELD OF THE INVENTION

5           The invention relates to cleansing compositions. In particular, the invention is concerned with very mild and high foaming cleansing compositions suitable for cleansing the skin and hair.

10       BACKGROUND TO THE INVENTION AND PRIOR ART

          The most widely used anionic surfactants in cleansing compositions are alkyl sulphates, polyoxyethylene alkyl sulphates and alkyl benzene sulphonates. These compounds  
15       are known to have a good foaming and deterging power. Due to their harshness, however, they are not desirable as components for cleansing compositions topically applied to human skin and hair. Their damaging effect particularly where young, tender or damaged skin is involved, has been  
20       the subject of intense study for many years.

          On the other hand milder surfactants often suffer from the draw-back that they do not provide high foam which is very important for the consumer. Therefore, there is a  
25       strong need for products which are not only very mild but also possess an excellent foaming power.

          US-A-3,728,447 (C J Patterson) discloses hair shampoo compositions containing fatty acid lactylates or

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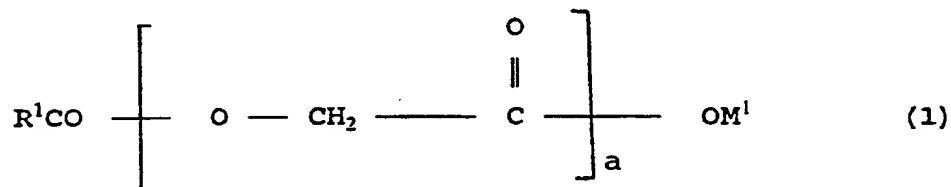
glycolates. While the cleaning action of shampoos based on the fatty acid glycolates is satisfactory, the foam is minimal. In order to achieve higher foaming action it is described to include harsh detergents such as sodium lauryl sulphate or triethanolamine lauryl sulphate. When the glycolates are used in conjunction with such a booster, detergent the quantity of the glycolates present in the composition is reduced down to about 1 to 2% by weight.

Applicants in their search for mild cleansing compositions, in particular for cleansing human skin or hair, with the added attribute that full lather is produced, have unexpectedly discovered that a narrow range of acyl glycolates in combination with specific co-surfactants provide the desired effects when used in particular amounts. The compositions so obtained are capable of producing a superior lather and accordingly have great consumer appeal. Also, the compositions are so mild that they can safely be used for cleansing the skin and the hair and other more delicate skin areas.

#### DEFINITION OF THE INVENTION

Accordingly, the invention provides a cleansing composition which comprises, in addition to water,

(a) from 10 to 35% by weight of one or more acyl glycolate(s) of the following structure (1)



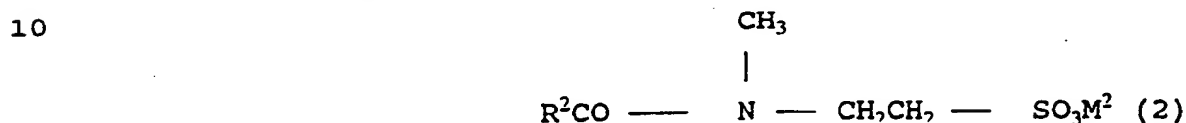
where  $\text{R}^1\text{CO}$  represents a  $\text{C}_6$  to  $\text{C}_{16}$  acyl radical;  $a$  is an integer from 1 to 3;  $\text{M}^1$  represents hydrogen or a counterion chosen from alkali metal, ammonium or a substituted

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ammonium group having one or more C<sub>1</sub> to C<sub>3</sub> alkyl or hydroxy alkyl group(s); and

5 (b) from 5 to 25% by weight of one or more co-surfactant(s) chosen from the following compounds (A) to (O):

(A) N-methyl-N-acyl taurates of the following structure (2)



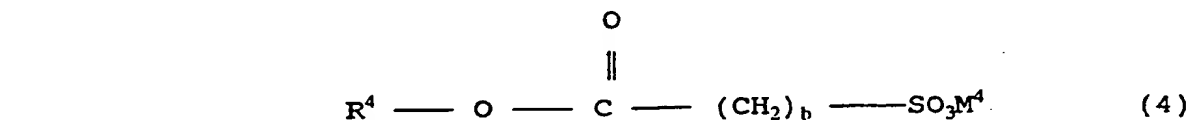
15 where R<sup>2</sup>CO represents a C<sub>10</sub> to C<sub>18</sub> acyl group; and M<sup>2</sup> is as M<sup>1</sup> in structure (1);

(B) Acylisethionates of the following structure (3)



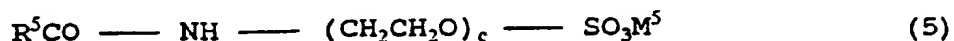
where R<sup>3</sup>CO represents a C<sub>10</sub> to C<sub>18</sub> acyl group; and M<sup>3</sup> is as M<sup>1</sup> in structure (1);

25 (C) Alkylesters of ω-sulphonated carboxylic acids of the following structure (4)



where R<sup>4</sup> represents a C<sub>10</sub> to C<sub>18</sub> alkyl group; M<sup>4</sup> is as M<sup>1</sup> in structure (1); and (b) is an integer from 1 to 3;

35 (D) Fatty acylamido polyoxyethylene sulphates of the following structure (5)



- 4 -

where  $R^5CO$  represents a  $C_{10}$  to  $C_{18}$  acyl group;  $M^5$  is as  $M^1$  in structure (1); and  $c$  is an integer from 1 to 10;

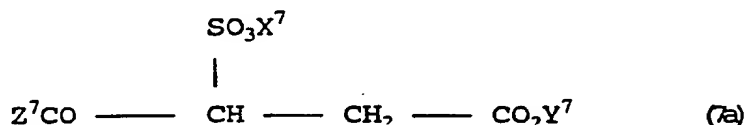
5 (E) Fatty acid polyglyceride sulphates of the following structure (6)



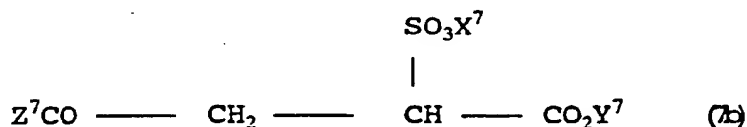
10 where  $R^6CO$  represents a  $C_{10}$  to  $C_{18}$  acyl group;  $M^6$  is as  $M^1$  in structure (1); and  $d$  is an integer from 1 to 4;

(F) Mono substituted sulphosuccinates of the following structures (7a) or (7b)

15



20



25 where  $Z^7$  is chosen from the following groups (i) to (iii):

(i)  $R^aCO - NH - (CH_2CH_2O)_e -$ , where  $R^aCO$  represents a  $C_{10}$  to  $C_{18}$  acyl group; and  $e$  is an integer from 1 to 10;

30

(ii)  $R^b - O - (CH_2CH_2O)_f -$ , where  $R^b$  represents a  $C_{10}$  to  $C_{18}$  alkyl group; and  $f$  is an integer from 1 to 10;

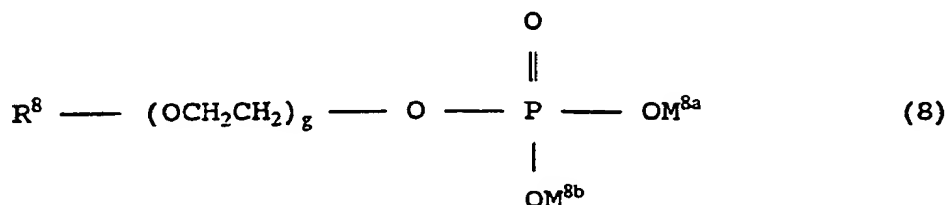
35 (iii)  $R^c - O -$ , where  $R^c$  represents a  $C_{10}$  to  $C_{18}$  alkyl group; and

$X^7$  and  $Y^7$  are independently from each other chosen from

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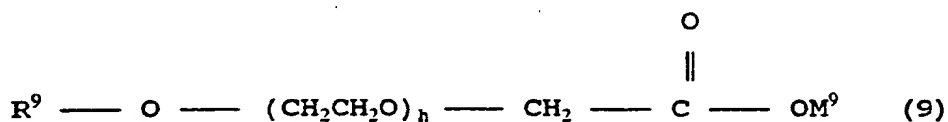
the counterions represented by  $M^1$  in structure (1);

(G) Mono substituted phosphates of the following structure (8)



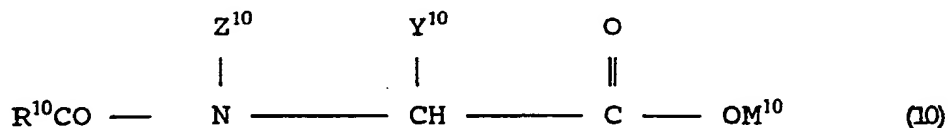
where  $R^8$  represents a  $C_{10}$  to  $C_{18}$  alkyl group;  $M^{8a}$  and  $M^{8b}$  are independently from each other chosen from the group of species represented by  $M^1$  in structure (1); and  $g$  is an integer from 0 to 3;

(H) Alkyl poly(ethylene glycol) acetates of the following structure (9)



where  $R^9$  represents a  $C_{10}$  to  $C_{18}$  alkyl group;  $M^9$  is as  $M^1$  in structure (1); and  $h$  is an integer from 1 to 10;

(I) Salts of N-acyl  $\alpha$ -amino acids of the following structure (10)



where  $R^{10}CO$  represents a  $C_{10}$  to  $C_{18}$  acyl group;  $Z^{10}$  represents H or  $C_1$  to  $C_2$  alkyl;  $Y^{10}$  represents H,  $C_1$  to  $C_3$  alkyl or  $C_1$  to  $C_3$  alkyl substituted with a COOH group; and  $M^{10}$  is chosen from the counterions represented by  $M^1$  in

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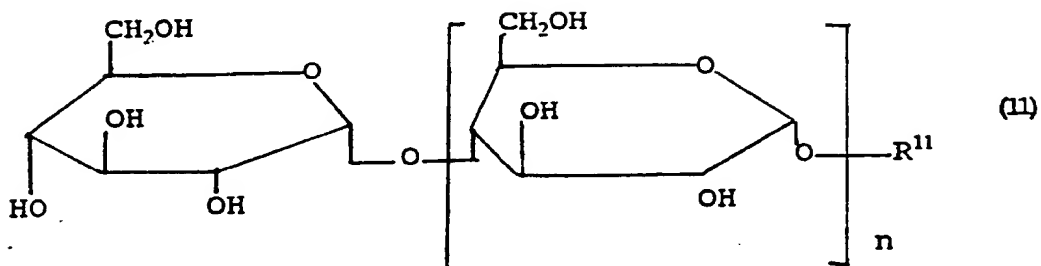
structure (1);

(K) Alkyl polyglucosides of the following structure

(11)

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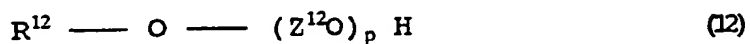
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where  $R^{11}$  represents a  $C_{10}$  to  $C_{14}$  alkyl group; and  $n$  is an integer from 1 to 3;

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(L) Poly(oxyalkylene) fatty alkyl ether of the following structure (12)



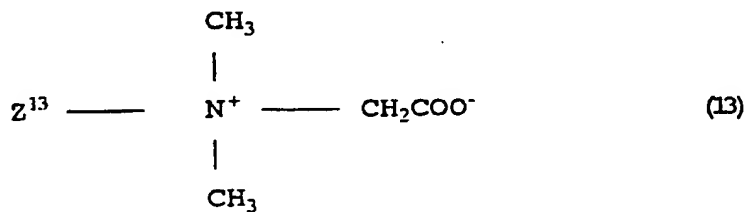
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where  $R^{12}$  represents a  $C_8$  to  $C_{18}$  alkyl group;  $Z^{12}$  is a  $C_2$  or  $C_3$  alkylene group; and  $p$  is an integer from 1 to 10;

(M) N-substituted betaines of the following structure

25

(13)



30

where  $Z^{13}$  represents

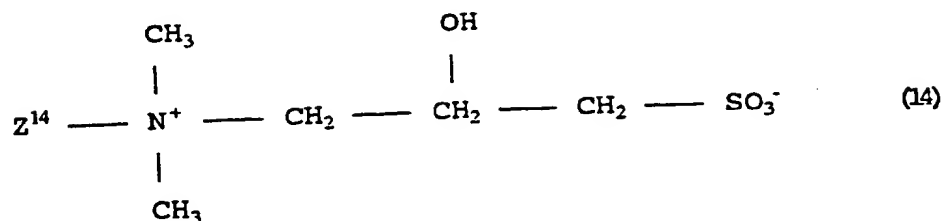
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- (i) a  $C_{10}$  to  $C_{18}$  alkyl group; or
- (ii) a  $R^{13}\text{CO} - \text{NH} - (\text{CH}_2)_3$  group, where  $R^{13}\text{CO}$  represents a  $C_{10}$  to  $C_{18}$  acyl group;



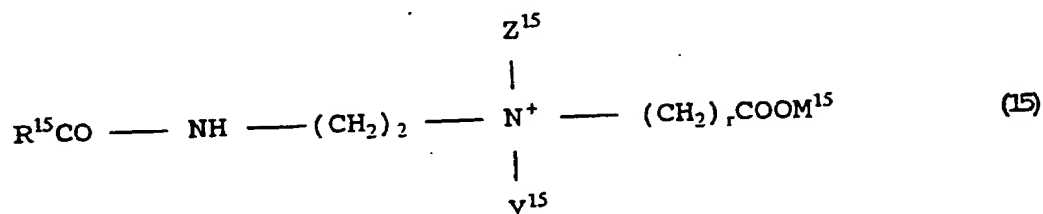
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(N) Sultaines of the following structure (14)



where  $\text{Z}^{14}$  represents a  $\text{C}_{10}$  to  $\text{C}_{18}$  alkyl group or a  $\text{C}_{10}$  to  $\text{C}_{18}$  acyl amido group; and

(O) Alkyl amphocarboxylates of the following structure (15)



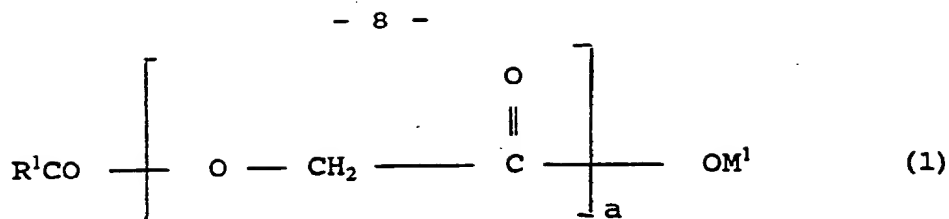
where  $\text{R}^{15}\text{CO}$  represents a  $\text{C}_{10}$  to  $\text{C}_{18}$  acyl group;  $\text{Z}^{15}$  and  $\text{Y}^{15}$  are independently from each other chosen from H,  $\text{CH}_2\text{CH}_2\text{OH}$  or  $(\text{CH}_2)_r\text{COO}^-$ ;  $r$  is 1 or 2; and  $\text{M}^{15}$  is as  $\text{M}^1$  in structure (1);

Preferably the composition according to the invention has a foam height of more than 130mm, as measured by the foam height test described herein.

### DISCLOSURE OF THE INVENTION

#### The Acyl glycolates

The composition according to the invention comprises from 10 to 35% by weight of one or more acyl glycolate(s) of the following structure (1)



5

where  $\text{R}^1\text{CO}$  represents a  $\text{C}_6$  to  $\text{C}_{16}$  acyl radical;  $a$  is an integer from 1 to 3;  $\text{M}^1$  represents hydrogen or a counterion chosen from alkali metal, ammonium or substituted ammonium group having one or more  $\text{C}_1$  to  $\text{C}_3$  alkyl or hydroxy alkyl group(s).

10

Examples of acyl glycolates having the above structure (1) include:

15

Sodium lauroyl monoglycolate  
 Sodium myristoyl monoglycolate  
 Sodium decanoyl monoglycolate  
 Potassium dodecanoyl monoglycolate  
 Potassium dodecanoyl diglycolate  
 Sodium myristoyl diglycolate  
 Sodium lauroyl diglycolate  
 Lauroyl diglycolic acid  
 Palmitoyl diglycolic acid  
 Triethanolammonium dodecanoyl monoglycolate  
 Ammonium decanoyl monoglycolate, and  
 Triethanolammonium decanoyl monoglycolate.

20

25

The preferred acyl group  $\text{R}^1\text{CO}$  is a  $\text{C}_{10}$  to  $\text{C}_{14}$  acyl group.

30

Preferred examples for  $\text{M}^1$  include sodium, potassium, ammonium and triethanolammonium.

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The amount of the acyl glycolate present in the composition according to the invention is preferably from 15 to 30%, most preferred from 20 to 30% by weight of the composition.

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The Co-surfactant

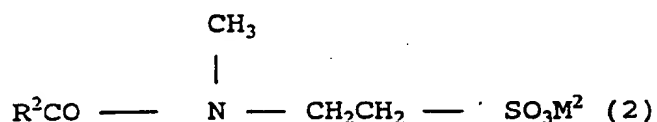
The composition according to the invention further comprises one or more co-surfactant(s) in an amount from 5 to 25% by weight of the composition. The co-surfactant is chosen from the compounds (A) to (O) described hereinafter.

The preferred amount of the co-surfactant present in the composition is from 10 to 25% by weight.

The co-surfactants useful in the present invention are not only very mild but also result in high foaming compositions when combined with the acyl glycolate in the specified amounts.

The following compounds are suitable as co-surfactant in the cleansing composition according to the invention.

(A) N-methyl-N-acyl taurates, having the following structure (2)



where  $\text{R}^2\text{CO}$  represents a  $\text{C}_{10}$  to  $\text{C}_{18}$  acyl group; and  $\text{M}^2$  is as  $\text{M}^1$  in structure (1).

Preferred examples for taurates having the structure (2) include:

- Sodium N-methyl-N-cocoyl taurate, eg. available as Diapon K from Nippon Oil and Fats,
- Sodium N-methyl-N-lauroyl taurate, eg. available as Diapon LM from Nippon Oils and Fats,
- Sodium N-methyl-N-myristoyl taurate, eg. available as Nikkol MMT from Nikkol Chemicals.

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(B) Acylisethionates, having the structure (3);

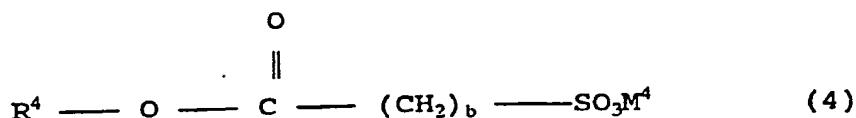


5 where  $R^3CO$  represents a  $C_{10}$  to  $C_{18}$  acyl group; and  $M^3$  is as  $M^1$  in structure (1).

10 The preferred example for an Acylisethionate having the structure (3) is sodium cocoyl isethionate, eg. available as Fenopon AC 78 from Rhone Poulenc.

(C) Alkylesters of  $\omega$ -sulphonated carboxylic acids, having the structure (4);

15

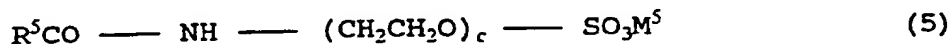


20 where  $R^4$  represents a  $C_{10}$  to  $C_{18}$  alkyl group;  $M^4$  is as  $M^1$  in structure (1); and (b) is an integer from 1 to 3.

25 The preferred example for an Alkylester of a  $\omega$ -sulphonated carboxylic acid having the structure (4) is sodium lauryl sulphoacetate, eg. available as Lathanol LAL from Stepan or as Nikkol LSA and Nikkol Chemicals.

(D) Fatty acylamido polyoxyethylene sulphates, having the structure (5);

30



35 where  $R^5CO$  represents a  $C_{10}$  to  $C_{18}$  acyl group;  $M^5$  is as  $M^1$  in structure (1); and c is an integer from 1 to 10.

The preferred example for a sulphate having the structure (5) is sodium cocoyl amide EO-3 sulphate, eg.

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available as Sunamide C-3 from Nippon Oils & Fats.

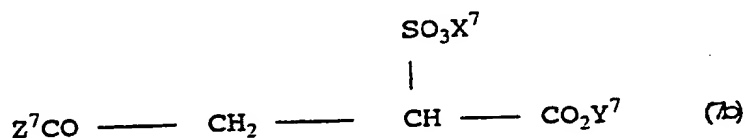
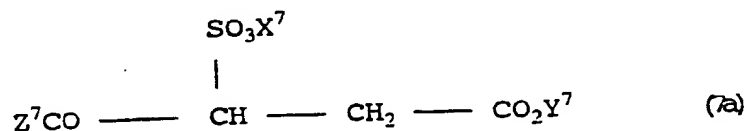
(E) Fatty acyl polyglyceride sulphates, having the structure (6);



where  $R^6CO$  represents a  $C_{10}$  to  $C_{18}$  acyl group;  $M^6$  is as  $M^1$  in structure (1); and  $d$  is an integer from 1 to 4;

A preferred example for a fatty acyl poly(glyceride) sulphate having the structure (6) is sodium cocoyl monoglyceride sulphate, available from Jan Dekker International.

(F) Mono substituted sulphosuccinates, having the structures (7a) or (7b);



where  $Z^7$  is chosen from the following groups (i) to (iii):

(i)  $R^aCO - NH - (CH_2CH_2O)_e -$ , where  $R^aCO$  represents a  $C_{10}$  to  $C_{18}$  acyl group; and  $e$  is an integer from 1 to 10;

(ii)  $R^b - O - (CH_2CH_2O)_f -$ , where  $R^b$  represents a  $C_{10}$  to  $C_{18}$  alkyl group; and  $f$  is an integer from 1 to 10;

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(iii)  $R^c - O -$ , where  $R^c$  represents a  $C_{10}$  to  $C_{18}$  alkyl group; and

5  $X^7$  and  $Y^7$  are independently from each other chosen from the counterions represented by  $M^1$  in structure (1).

Preferred examples for mono substituted sulphosuccinates represented by the structures (7a) and (7b) include:

10

- Disodium lauroyl amido (EO)-2 to 3 sulphosuccinate eg. available as Beaulight A-5000 from Sanyo Chemicals,

15

- a mixture of Disodium lauryl (PEG)-2 sulphosuccinate and Disodium myristyl (PEG)-2 sulphosuccinate, eg. available as Beaulight ESS from Sanyo Chemicals,

- Disodium lauryl (PEG)-2 to 3 sulphosuccinate, eg. available as Rewopol SBFA 30 from Rewo, and

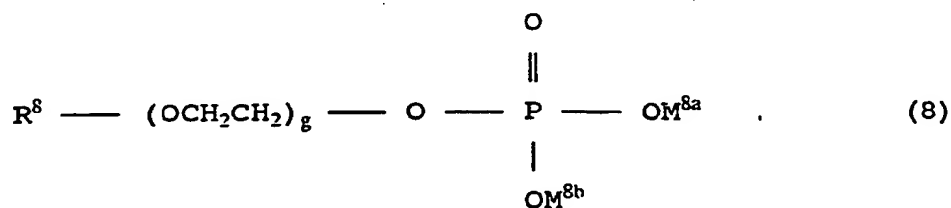
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- Disodium lauryl sulphosuccinate, eg. available as Beaulight SSS from Sanyo Chemicals.

25 The short form (EO)-2 to 3 denotes that, as an average value, 2 to 3 oxyethylene groups are present per molecule sulphosuccinate. On the other hand, the short form (PEG)-2 to 3 stands for the presence of a polyethylene glycol group derived from, as an average value, 2 to 3 ethylene glycol molecules per molecule sulphosuccinate.

30 (G) Mono substituted phosphates, having the structure (8),

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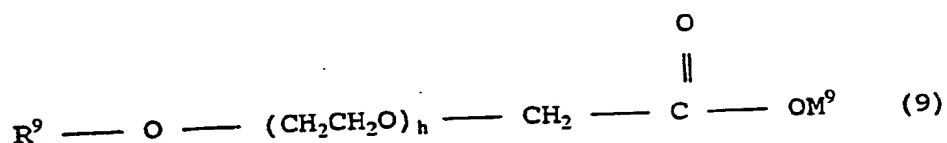
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where  $R^8$  represents a  $C_{10}$  to  $C_{18}$  alkyl group;  $M^{8a}$  and  $M^{8b}$  are independently from each other chosen from the group of species represented by  $M^1$  in structure (1); and  $g$  is an integer from 0 to 3.

Preferred examples for Mono substituted phosphates having the structure (8) include:

- Monosodium monolauryl phosphate, eg. available as Phosten HLP from Nikkol Chemicals,
- Monosodium monolauryl (EO)-1 phosphate, eg. available as Phosten HLP-1 from Nikkol Chemicals, and
- Monosodium monolauryl (EO)-2 to 3 phosphate, eg. available as Phosphanol ML 220 from Toho Chemicals.

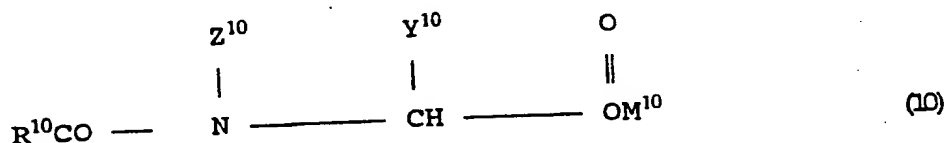
(H) Alkyl poly(ethylene glycol) acetate, having the structure (9),



where  $R^9$  represents a  $C_{10}$  to  $C_{18}$  alkyl group;  $M^9$  is as  $M^1$  in structure (1); and  $h$  is an integer from 1 to 10.

Preferred examples for Alkyl (PEG) acetates having the structure (9) include, Sodium Cocoyl PEG-10 acetate, eg. available as Marlinat CM 105 from Huls, and Sodium tridecyl (PEG)-3 acetate, eg. available as Beaulight ECA from Sanyo Chemicals.

(I) Salts of N-acyl  $\alpha$ -amino acids, having the structure (10);



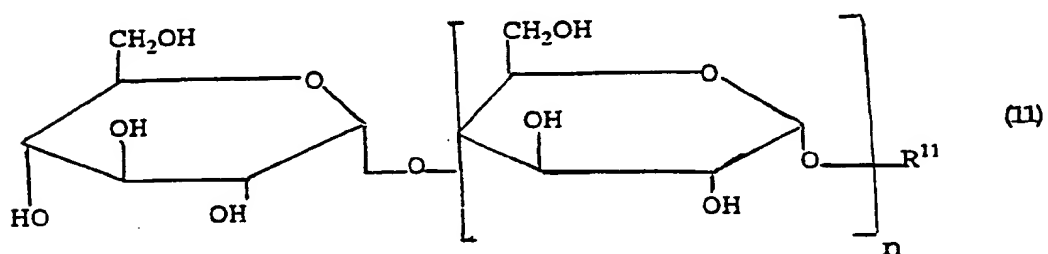
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where  $R^{10}CO$  represents a  $C_{10}$  to  $C_{18}$  acyl group;  $Z^{10}$  represents H or  $C_1$  to  $C_2$  alkyl;  $Y^{10}$  represents H,  $C_1$  to  $C_3$  alkyl or  $C_1$  to  $C_3$  alkyl substituted with a COOH group; and  $M^{10}$  is chosen from the counterions represented by  $M^1$  in structure (1).

Preferred examples for salts of N-acyl  $\alpha$ -amino acids having the structure (10) include:

- Sodium N-lauroyl glutamate, available as Amisoft, LS-11 from Ajinomoto Inc.,
- Sodium N-cocoyl glutamate, eg. available as Amisoft CS-11 from Ajinomoto Inc.,
- Triethanolammonium N-cocoyl sarcosinate, eg. available as Firet KT from Nippon Oil and Fats,
- Sodium N-decanoyl sarcosinate,
- Sodium N-lauroyl alaninate, eg. available as Alaninate LN-30 from Nikkol Chemicals,
- Sodium N-cocoyl alaninate,
- Sodium N-cocoyl aspartate, and
- Sodium N-lauroyl aspartate.

(K) Alkyl poly glucoside, having the structure (11);



where  $R^{11}$  represents a  $C_{10}$  to  $C_{14}$  alkyl group; and  $n$  is an integer from 1 to 3.

Preferred examples for Alkyl poly glucosides having the structure (11) include;

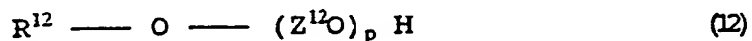


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- Decyl poly glucoside ( $n = 1.44$ ), eg. available as Oramix NS10 from Seppic, and
- $C_9 - C_{11}$  Alkyl poly glucoside ( $n = 1.4$ ), eg. available as APG 300 from Henkel.

5

(L) Poly(oxyalkylene) fatty alkyl ether, having the structure (12),



10

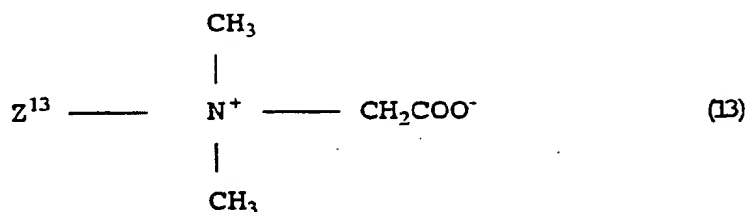
where  $R^{12}$  represents a  $C_8$  to  $C_{18}$  alkyl group;  $Z^{12}$  is a  $C_2$  or  $C_3$  alkylene group; and  $p$  is an integer from 1 to 10.

15

Preferred examples for a poly(oxyalkylene)-fatty alkyl ether having the structure (12) are (PEG)-6 lauryl ether and (PEG)-6 myristyl ether. A mixture of (PEG)-6  $C_{12}-C_{15}$  is available as Dobanol 91-6 from Shell Chemicals.

20

(M) N-substituted Betaines, having the structure (13);



25

where  $Z^{13}$  represents

30

- (i) a  $C_{10}$  to  $C_{18}$  alkyl group; or
- (ii) a  $R^{13}\text{CO} - \text{NH} - (\text{CH}_2)_3$  group, where  $R^{13}\text{CO}$  represents a  $C_{10}$  to  $C_{18}$  acyl group.

35

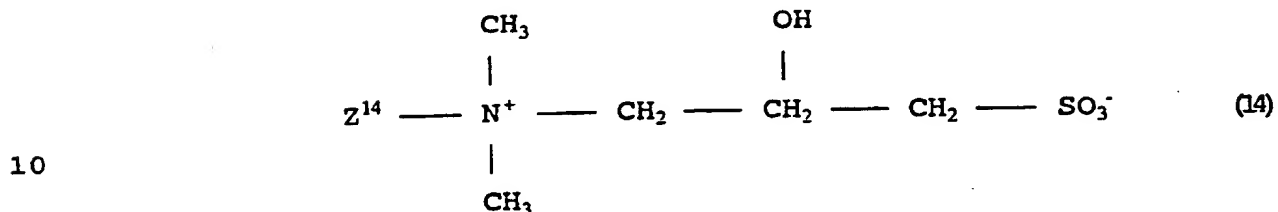
Preferred examples for N-substituted Betaines having the structure (13) include:

- Lauryl dimethyl betaine, eg. available as Empigen

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- BB from Albright & Wilson, and  
 - Cocoamidopropyl betaine, eg. available as  
 Tegobetaine L7F from Goldschmidt.

5 (N) Sultaines, having the structure (14);

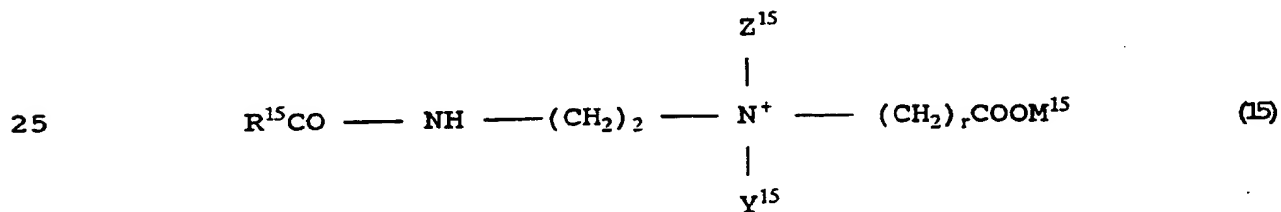


where  $\text{Z}^{14}$  represents a  $\text{C}_{10}$  to  $\text{C}_{18}$  alkyl group or a  $\text{C}_{10}$  to  $\text{C}_{18}$  acyl amido group.

15

A preferred example for a Sultaine having the structure (14) is Cocoamidopropyl hydroxysultaine, eg. available as Cycloteric BET-CS from Alcolac.

20 (O) Alkylamphocarboxylates, having the structure (15);



30 where  $\text{R}^{15}\text{CO}$  represents a  $\text{C}_{10}$  to  $\text{C}_{18}$  acyl group;  $\text{Z}^{15}$  and  $\text{Y}^{15}$  are independently from each other chosen from H,  $\text{CH}_2\text{CH}_2\text{OH}$  or  $(\text{CH}_2)_r\text{COO}^-$ ; r is 1 or 2; and  $\text{M}^{15}$  is as  $\text{M}^1$  in structure (1).

Preferred examples for Alkylamphocarboxylates having the structure (15) include:

35

- Cocoamphoglycinate eg. available from GAF,
- Wheatgerm amphodiglycinate,

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- Cocamphodipropionate, eg. available as Mirataine C2MS from Rhone Poulenc,
- Caprylamphodipropionate, eg. available as Miranol S2MSF from Rhone Poulenc,
- 5      - Cocoamphoacetate, eg. available as Nissan Anon GLM-R from Nippon Oils & Fats.

### Water

10      The cleansing composition according to the invention also comprises water. The water will normally be present in an amount of up to 85%, preferably from 10 to 85% by weight of the composition.

### 15      Optional Ingredients

20      The cleansing composition according to the invention can also comprise optional ingredients to modify the physical or chemical characteristics of the composition, eg. product form, foaming properties, pH-value or shelf life.

Examples for ingredients which can be included in the compositions according to the invention are:

25

Emollients, such as:

30

- [PEG]-20 Corn Glycerides,
- [PEG]-60 Corn Glycerides,
- [PEG]-20 Almond Glycerides,
- [PEG]-60 Almond Glycerides,
- [PEG]-12 Palm Kernel Glycerides,
- [PEG]-45 Palm Kernel Glycerides,
- [PEG]-20 Evening Primrose Glycerides,
- [PEG]-60 Evening Primrose Glycerides,
- 35      - Ethoxylated (EO)-20 methyl glucoside, also referred to as Methyl gluceth-20
- Propoxylated (EO)-10 methyl glucoside.

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A group of preferred emollients are poly (oxyalkylene) glycerides mono-substituted with a C<sub>10</sub> to C<sub>18</sub> alkyl group and having up to 20 C<sub>2</sub> to C<sub>3</sub> oxyalkylene moieties per molecule of the glyceride, as an average value.

5

Especially preferred emollients are Polyoxyalkylene methyl glucosides having, as an average value, up to 20 C<sub>2</sub> - C<sub>3</sub> oxyalkylene moieties per molecule glucoside. These emollients are very beneficial as they impart a soft feeling to the skin and support the ability of the skin to retain moisture. Examples for such Polyoxyalkylene methyl glucosides are available as Glucam E-20 and Glucam P10, respectively, from Amerchol.

10

15

Humectants, such as glycerine, sorbitol, sodium 2-pyrrolidone-5-carboxylate, soluble collagen, gelatine, ethoxylated (EO)-20 methyl glucoside, and propoxylated (EO)-10 methyl glucoside.

20

Preservatives, such as ethanol, benzoic acid, sodium benzoate, sorbic acid, alkali metal halides;

25

pH controlling agents, such as Sodium hydroxide, Citric acid, Triethanolamine, Potassium hydroxide, Amino Sorbitol. The pH controlling agents are preferably present in an amount sufficient to adjust the composition to a pH value in the range of 5.5 to 8.5.

30

Propellants, such as fluorochloro hydrocarbons, propane, butane, isobutane, dimethyl ether, carbon dioxide, nitrous oxide;

35

Foam modifying agents, such as cationic polymers, especially quaternised ammonium hydroxy ethyl cellulose polymers, eg. available as polyquaternium-24 or polyquaternium-10. These polymers make the foam creamier and richer.

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Further Optional Ingredients

5 The composition according to the invention can also contain other optional agents, that is ingredients other than the main ingredients already defined which are conventionally employed in cleansing compositions, such as thickeners.

USE OF THE COMPOSITION

10

The cleansing composition according to the invention is primarily intended as a personal washing product for cleansing the face. It can also be used for washing the hair as well as the whole body. The composition according to the invention is preferably used as facial cleanser, facial wash foam, hair shampoo, body shampoo, bath foam or shaving cream. Due to the high detergency provided by the composition it is also possible to use it in non-cosmetic applications, such as a household cleanser, carpet cleanser or detergent for tableware.

20

The following procedure is an example for the use of the cleansing composition according to the invention; a small quantity, for example from 1 to 5ml, of the composition is either rubbed between the hands, together with water together to form a foam which is then used for washing or applied via a sponge to the area to be cleansed, or the foam is generated directly on that area. The foam is subsequently rinsed away with clean water.

30

The cleansing composition according to the invention can take the form of a liquid or gel, intended to be dispensed from a capped container such as a bottle, roll-on applicator or tube, or a pump-operated or propellant-driven aerosol dispenser. The composition can also take the form of a solid, such as a stick or a bar or tablet intended to be used for washing instead of a conventional soap bar.

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- 20 -

Foaming Properties of the Composition

5        Although the composition according to the invention does not include harsh surfactants, as are found in conventional cleansing compositions, its foaming power is excellent.

Foam-Height Test

10        The test-method which can be used to assess the foaming power of the cleansing compositions according to the invention is the ASTM D 1173-53 test, also referred to as Ross-Miles test, and described in J Ross and G D Miles, American Society for Testing Materials, 1953, pages 644-  
15        646. The test is carried out at a temperature of 20°C by using an aqueous test solution of 0.3% by weight acyl glycolate and 0.1% by weight co-surfactant. This is a realistic concentration of the cleansing composition according to the invention when used by the consumer, eg.  
20        when topically applied on the face or body together with water to generate the desired foam. The pH value of the test solution has been adjusted to a pH of 7.5 by addition of aqueous sodium hydroxide solution.

25        The cleaning composition according to the invention conveniently has a foam height of more than 130mm, as measured by the foam height test carried out under the conditions described above.

30        Preferably the compositions according to the invention have a foam height of more than 150mm, more preferably more than 170mm and most preferably more than 190mm.

EXAMPLES

5           The following examples further illustrate the invention by giving conventionally prepared formulations for different types of cleansing compositions.

Example 1 - Facial Cleanser

	<u>wt %</u>
10           Potassium dodecanoyl monoglycolate	15.00
Potassium dodecanoyl diglycolate	15.00
Disodium lauryl sulphosuccinate	7.00
Glycerol (Humectant)	5.00
15           Sodium chloride (Thickener)	4.20
Methyl gluceth-20 (Humectant/Emollient)	3.00
Polyquaternium 10 (Foam modifier)	0.40
Ethyleneglycol monostearate (Thickener)	0.40
Preservative	0.30
Fragrance	0.30
20           Citric acid	to pH 7.0-7.5
Distilled water	to 100.00

Example 2 - Mild Facial Cleanser

	<u>wt %</u>
25           Sodium myristoyl diglycolate	
20.00	
Sorbitol (Humectant)	9.00
Sodium cocoyl isethionate	7.00
30           Cocoamidopropyl hydroxysulphobetaine	4.00
Polyoxyethylene [EO]-20 sorbitan monolaurate	3.00
(Thickener)	
Hydroxypropyl methylcellulose (Thickener)	0.20
Preservative	0.20
Fragrance	0.10
35           Citric acid	to pH 6.0-6.5
Distilled water	to 100.00

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Example 3 - Facial Cleanser for Dry Skin

		<u>wt %</u>
	Sodium lauroyl diglycolate	25.00
5	Sodium monolauryl phosphate	10.00
	Propylene glycol	10.00
	Polyethyleneglycol (PEG)-150 distearate	5.00
	Preservative	0.25
	Fragrance	0.20
10	Citric acid	to pH 6.5-7.0
	Distilled water	to 100.00

Example 4 - Mild Facial Cleanser for Sensitive Skin

		<u>wt %</u>
15	Lauroyl diglycolic acid	20.0
	Sodium N-methyl-N-myristoyl taurate	6.00
	Cocoamphoacetate	3.50
	Glycerol (Humectant)	9.00
	Diglycerol (Humectant)	1.00
20	PEG-20 almond glycerides (Emollient)	5.00
	Polyquaternium 24 (Thickener, Foam Modifier)	0.40
	Sodium Hydroxide (aq. soln.)	to pH 6.0-6.5
	Distilled water	to 100.00

25 Example 5 - Liquid Hand Soap

		<u>wt %</u>
	Lauroyl diglycolic acid	7.50
	Palmitoyl diglycolic acid	7.50
	Triethanolammonium N-lauroyl glutamate	9.00
30	Cocoamidopropyl betaine	4.00
	Propyleneglycol hydroxy isostearate (Thickener)	1.00
	Trisodium citrate (Thickener)	7.00
	Preservative	0.26
	Fragrance	0.15
35	Triethanolamine	to pH 7.0-7.3
	Distilled water	to 100.00



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Example 6 - Anti-Acne Facial Cleansing Scrub Gel

	wt %
Sodium decanoyl monoglycolate	18.00
Sodium N-cocoyl sarcosinate	6.00
5 Benzoyl peroxide (70% aq.soln.)	14.30
Polyoxyethylene (PEG)-20 cetyl ether (Thickener, Emulsifier)	10.00
Magnesium aluminium silicate (Thickener)	1.00
Disodium ethylenediamine tetraacetate (Chelating Agent)	0.20
10 Sodium Hydroxide	to pH 7.0-7.5
Distilled water	to 100.00

Example 7 - Hair Shampoo

	wt %
15 Triethanolammonium dodecanoyl monoglycolate	21.00
Sodium lauryl (PEG)-10 acetate	4.00
Cocoamphodipropionate	3.00
Propylene glycol (Humectant)	2.50
20 Sodium chloride (Thickener)	1.20
Preservative	0.20
Fragrance	0.20
Citric acid	to pH 6.0-6.5
Distilled water	to 100.00

25

Example 8 - Mild Hair Shampoo

	wt %
Potassium myristoyl diglycolate	15.00
Lauryl ethoxylated (EO)-2.5 phosphoric acid	8.00
30 Sodium pyrrolidone carboxylate (50% aq.soln.)	1.00
(Humectant)	
Sodium chloride (Thickener)	3.00
Fragrance	0.24
Preservative	0.10
35 Potassium hydroxide (aq.soln.)	to pH 6.0-6.5
Distilled water	to 100.00

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Example 9 - Conditioning Shampoo

	<u>wt %</u>
Potassium lauroyl monoglycolate	11.00
Sodium lauroylamide polyoxyethylene (EO)-3	
5 sulphate	4.50
Lauryldimethyl betaine	4.00
Potassium chloride (Thickener)	2.50
Dimethicone copolyol (Conditioning agent)	0.50
Preservative	0.17
10 Fragrance	0.11
Dye	0.02
Citric acid	to pH 6.5-7.0
Distilled water	to 100.00

15 Example 10 - Antidandruff Shampoo

	<u>wt %</u>
Ammonium decanoyl monoglycolate	14.00
Ammonium decanoyl diglycolate	4.00
Ammonium lauryl sulphoacetate	5.00
20 Zinc Pyrithione (48% aq.soln.) (Anti-fungal agent)	2.10
Hydroxypropyl methylcellulose	1.25
Magnesium aluminium silicate (Thickener)	1.00
Preservative	0.36
25 Fragrance	0.20
Dye	0.03
Citric acid	to pH 7.0-7.3
Distilled water	to 100.00

30 Example 11 - Body Shampoo

	<u>wt %</u>
Dodecanoyl diglycolic acid	13.00
Sodium N-cocoyl alaninate	4.00
Lauroamphoglycinate	4.00
35 (PEG)-80 sorbitan laurate (Thickener)	3.30
Disodium ethylenediamine tetraacetate	0.20
Preservative	0.10

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Fragrance	0.05
Dye	0.01
Citric acid	to pH 7.0-7.5
Distilled water	to 100.00

5

Example 12 - Mild Body Shampoo

	wt %
Triethanolammonium lauroyl monoglycolate	7.50
Triethanolammonium myristoyl monoglycolate	7.50
10 Disodium lauryl (PEG)-2.5 sulphosuccinate	10.00
Cocoamidoproyl betaine	5.00
Glycerol	5.00
Polyoxyethylene (PEG)-45 monostearate (Thickener)	2.00
Preservative	0.35
15 Fragrance	0.35
Citric acid	to pH 7.0-7.5
Distilled water	to 100.00

Example 13 - Liquid Body Shampoo

	wt %
20 Potassium decanoyl monoglycolate	10.00
Potassium decanoyl diglycolate	10.00
Decyl polyglucoside (n=1.44)	5.00
Glycerol	5.00
25 Trisodium citrate dihydrate (Thickener)	1.50
Sodium carboxymethyl cellulose (Thickener)	1.00
Citric acid	to pH 7.0-7.5
Distilled water	to 100.00

30 Example 14 - Aerosol Body Shampoo

	wt %
Sodium decanoyl monoglycolate	10.00
Sodium decanoyl diglycolate	10.00
Decyl polyglucoside (n=1.44)	5.50
35 Glycerol	2.00
Trisodium citrate dihydrate	1.50
Sodium carboxymethyl cellulose	1.00
Preservative	0.35
Fragrance	0.35

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Citric acid	to pH 7.0-7.5
Distilled water	to 100.00

5        95% by weight of the solution obtained by mixing the above ingredients was combined with 5% by weight propellant and then sealed into a container.

Example 15 - Bath Foam Concentrate

		wt %
10	Lauroyl monoglycolic acid	15.00
	Lauroyl diglycolic acid	10.00
	Cocoamphopropionate	5.00
	Sorbitol	9.00
	Sodium chloride	6.00
15	Sodium carboxymethyl cellulose (Thickener)	1.00
	Preservative	0.30
	Fragrance	0.60
	Chamomile distillate (Anti-inflammatory agent)	1.00
	Aminosorbitol	to pH 7.0-7.5
20	Distilled water	to 100.00

Example 16 - Mild Bath Foam

		wt %
	Sodium myristoyl monoglycolate	18.00
25	Sodium myristoyl diglycolate	6.00
	Sodium lauroyl monoglyceride sulphate	5.00
	Cocoamidopropyl hydroxysulphobetaine	4.00
	Preservative	0.20
	Fragrance	1.00
30	Citric acid	to pH 7.2-7.7
	Distilled water	to 100.00

Example 17 - Conditioning Bubble Bath

		wt %
35	Triethanolammonium decanoyl monoglycolate	20.00
	Cocoamphodiacetate	5.00
	Polyoxyethylene (PEG)-20 cetyl ether	4.00

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	Polyoxyethylene (PEG)-50 stearyl ether	4.00
	Lauryl methyl gluceth-10 hydroxypropyl	
	diammonium chloride (Conditioner)	0.50
	Polyquaternium 24 (Thickener)	0.40
5	Citric acid	to pH 7.0-7.5
	Distilled water	to 100.00

Example 18 - Cleansing Bar

		<u>wt %</u>
10	Sodium lauroyl diglycolate	20.00
	Sodium myristoyl diglycolate	15.00
	Sodium N-cocoyl glutamate	15.00
	Sodium N-stearoyl aspartate	10.00
	Glycerol	8.00
15	Diglycerol	8.00
	Preservative	0.30
	Fragrance	0.60
	Pigment	0.10
	Distilled water	to 100.00%

20

Example 19 - Facial Wash Foam

		<u>%w/w</u>
	Sodium lauroyl glycolate	14.00
	Sodium myristoyl glycolate	6.00
25	Sodium lauryl ethoxy phosphate	6.00
	Disodium lauroyl amido ethoxy sulphosuccinate	2.00
	Disodium wheatgerm amido PEG-2 sulphosuccinate	2.00
	Polyquaternium-24	0.40
	Glycerol (humectant)	10.00
30	(PEG)-12 palm kernel glycerides (emollient)	5.00
	Sodium hydroxide solution	to pH 6.8-7.0
	Distilled water	to 100.00%

Example 20 - Facial Wash Foam

		<u>%w/w</u>
35	Sodium lauroyl glycolate	14.00
	Sodium myristoyl glycolate	6.00

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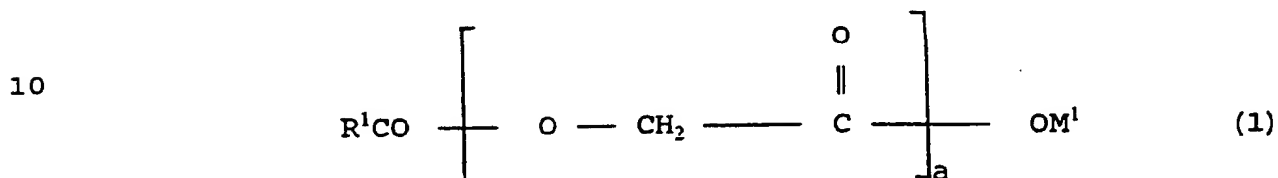
	Sodium cocoyl isethionate	6.00
	Wheatgerm amphodiacetate	2.00
	Cocoamphocarboxy glycinate	2.00
	Polyquaternium-24	0.40
5	Glycerol (humectant)	10.00
	(PEG)-40 almond glycerides (emollient)	5.00
	Sodium hydroxide solution	to pH 6.8-7.0
	Distilled water	to 100.00%
10	<u>Example 21</u> - Facial wash foam	
		<u>wt %</u>
	Sodium lauroyl glycolate	14.00
	Sodium myristoyl glycolate	6.00
	Sodium cocoyl isethionate	6.75
15	Monolauryl phosphoric acid	2.40
	Dilauryl phosphoric acid	0.60
	Triethanolammonium N-cocoyl sarcosinate	1.00
	Glycerol	10.00
	Polyquaternium 10	0.40
20	Sodium hydroxide solution	to pH 6.8-7.0
	Distilled water	to 100.00%
	<u>Example 22</u> - Facial wash foam	
		<u>wt %</u>
25	Sodium lauroyl glycolate	14.00
	Sodium myristoyl glycolate	6.00
	Sodium cocoyl isethionate	6.00
	Sodium N-methyl-N-cocoyl taurate	3.00
	Sodium N-cocoyl sarcosinate	1.00
30	Glycerol	10.00
	Polyquaternium 10	0.40
	Sodium hydroxide solution	to pH 6.8-7.0
	Distilled water	to 100.00%
35		

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CLAIMS

1. A cleansing composition which comprises, in addition to water,

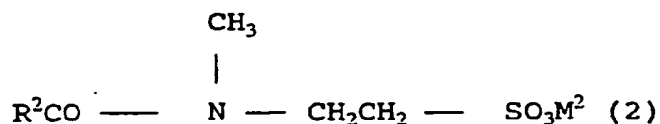
(a) from 10 to 35% by weight of one or more acyl glycolate(s) of the following structure (1)



where  $\text{R}^1\text{CO}$  represents a  $\text{C}_6$  to  $\text{C}_{16}$  acyl radical;  $a$  is an integer from 1 to 3;  $\text{M}^1$  represents hydrogen or a counterion chosen from alkali metal, ammonium or a substituted ammonium group having one or more  $\text{C}_1$  to  $\text{C}_3$  alkyl or hydroxy alkyl group(s); and

(b) from 5 to 25% by weight of one or more co-surfactant(s) chosen from the following compounds (A) to (O):

(A) N-methyl-N-acyl taurates of the following structure (2)



where  $\text{R}^2\text{CO}$  represents a  $\text{C}_{10}$  to  $\text{C}_{18}$  acyl group; and  $\text{M}^2$  is as  $\text{M}^1$  in structure (1);

(B) Acylisethionates of the following structure (3)



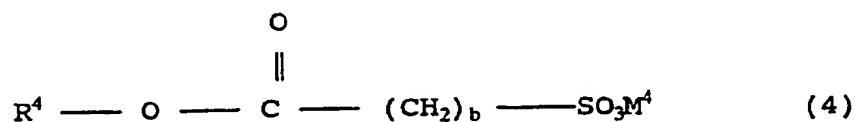
where  $\text{R}^3\text{CO}$  represents a  $\text{C}_{10}$  to  $\text{C}_{18}$  acyl group; and  $\text{M}^3$  is

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as M<sup>1</sup> in structure (1);

(C) Alkylesters of ω-sulphonated carboxylic acids of the following structure (4)

5

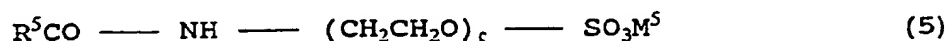


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where R<sup>4</sup> represents a C<sub>10</sub> to C<sub>18</sub> alkyl group; M<sup>4</sup> is as M<sup>1</sup> in structure (1); and (b) is an integer from 1 to 3;

(D) Fatty acylamido polyoxyethylene sulphates of the following structure (5)

15



where R<sup>5</sup>CO represents a C<sub>10</sub> to C<sub>18</sub> acyl group; M<sup>5</sup> is as M<sup>1</sup> in structure (1); and c is an integer from 1 to 10;

20

(E) Fatty acid polyglyceride sulphates of the following structure (6)

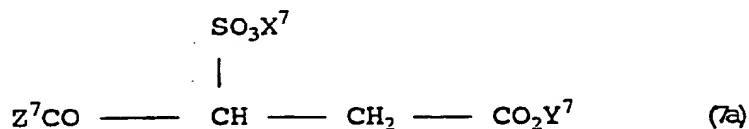


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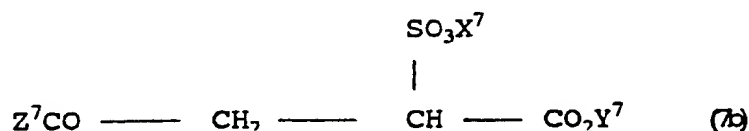
where R<sup>6</sup>CO represents a C<sub>10</sub> to C<sub>18</sub> acyl group; M<sup>6</sup> is as M<sup>1</sup> in structure (1); and d is an integer from 1 to 4;

(F) Mono substituted sulphosuccinates of the following structures (7a) or (7b)

30



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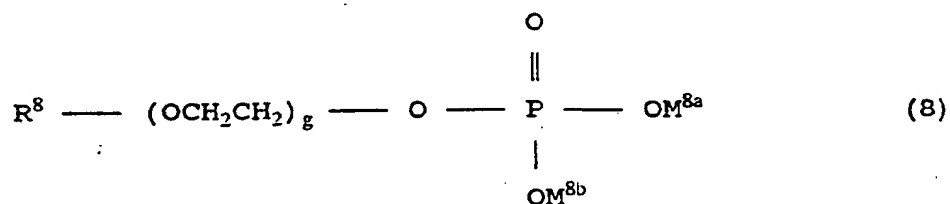
- 31 -

where  $Z^7$  is chosen from the following groups (i) to (iii):

- (i)  $R^aCO - NH - (CH_2CH_2O)_e -$ , where  $R^aCO$  represents a  $C_{10}$  to  $C_{18}$  acyl group; and  $e$  is an integer from 1 to 10;
- (ii)  $R^b - O - (CH_2CH_2O)_f -$ , where  $R^b$  represents a  $C_{10}$  to  $C_{18}$  alkyl group; and  $f$  is an integer from 1 to 10;
- (iii)  $R^c - O -$ , where  $R^c$  represents a  $C_{10}$  to  $C_{18}$  alkyl group; and

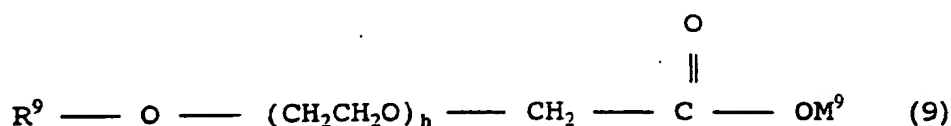
$X^7$  and  $Y^7$  are independently from each other chosen from the counterions represented by  $M^1$  in structure (1);

(G) Mono substituted phosphates of the following structure (8)



where  $R^8$  represents a  $C_{10}$  to  $C_{18}$  alkyl group;  $M^{8a}$  and  $M^{8b}$  are independently from each other chosen from the group of species represented by  $M^1$  in structure (1); and  $g$  is an integer from 0 to 3;

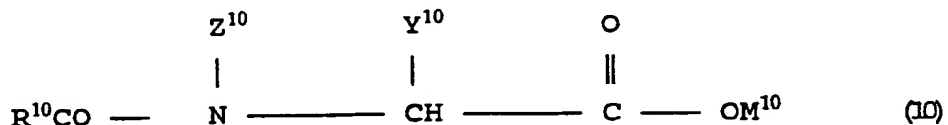
(H) Alkyl poly(ethylene glycol) acetates of the following structure (9)



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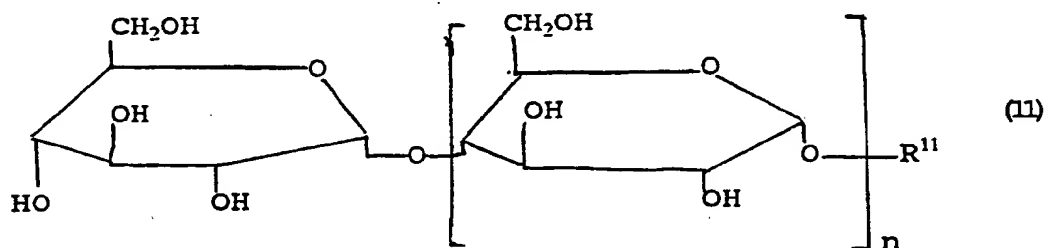
where  $R^9$  represents a  $C_{10}$  to  $C_{18}$  alkyl group;  $M^9$  is as  $M^1$  in structure (1); and  $h$  is an integer from 1 to 10;

(I) Salts of N-acyl  $\alpha$ -amino acids of the following structure (10)



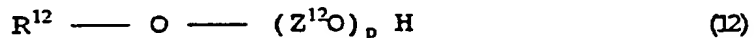
where  $R^{10}CO$  represents a  $C_{10}$  to  $C_{18}$  acyl group;  $Z^{10}$  represents H or  $C_1$  to  $C_2$  alkyl;  $Y^{10}$  represents H,  $C_1$  to  $C_3$  alkyl or  $C_1$  to  $C_3$  alkyl substituted with a COOH group; and  $M^{10}$  is chosen from the counterions represented by  $M^1$  in structure (1);

(K) Alkyl polyglucosides of the following structure (11)



where  $R^{11}$  represents a  $C_{10}$  to  $C_{14}$  alkyl group; and  $n$  is an integer from 1 to 3;

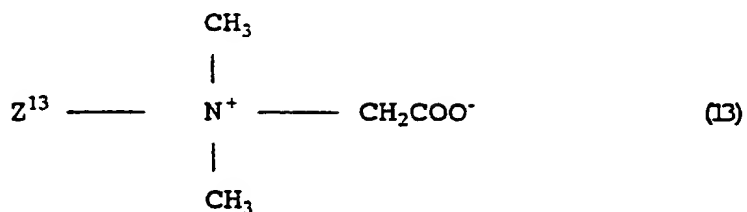
(L) Poly(oxyalkylene) fatty alkyl ether of the following structure (12)



where  $R^{12}$  represents a  $C_8$  to  $C_{18}$  alkyl group;  $Z^{12}$  is a  $C_2$  or  $C_3$  alkylene group; and  $p$  is an integer from 1 to 10;

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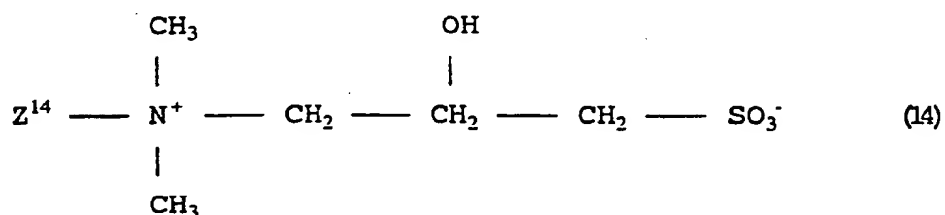
(M) N-substituted betaines of the following structure  
(13)



where  $\text{Z}^{13}$  represents

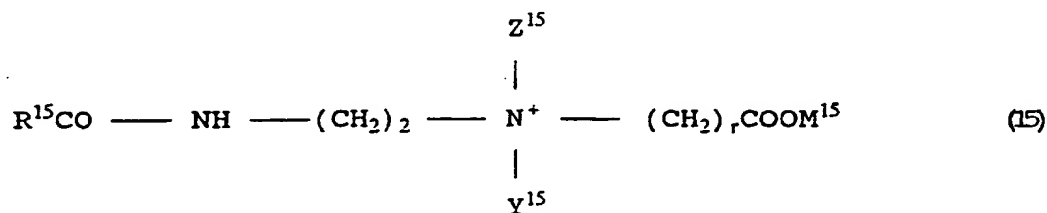
- (i) a  $\text{C}_{10}$  to  $\text{C}_{18}$  alkyl group; or
- (ii) a  $\text{R}^{13}\text{CO} - \text{NH} - (\text{CH}_2)_3$  group, where  $\text{R}^{13}\text{CO}$  represents a  $\text{C}_{10}$  to  $\text{C}_{18}$  acyl group;

(N) Sultaines of the following structure (14)



where  $\text{Z}^{14}$  represents a  $\text{C}_{10}$  to  $\text{C}_{18}$  alkyl group or a  $\text{C}_{10}$  to  $\text{C}_{18}$  acyl amido group;

(O) Alkyl amphocarboxylates of the following structure (15)



where  $\text{R}^{15}\text{CO}$  represents a  $\text{C}_{10}$  to  $\text{C}_{18}$  acyl group;  $\text{Z}^{15}$  and  $\text{Y}^{15}$  are independently from each other chosen from H,  $\text{CH}_2\text{CH}_2\text{OH}$  or

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$(\text{CH}_2)_r\text{COO}^-$ ;  $r$  is 1 or 2; and  $\text{M}^{15}$  is as  $\text{M}^1$  in structure (1);

2. A composition according to claim 1, which has a foam height of more than 130mm, as measured by the foam height test described herein.

3. A composition according to claim 1, in which the acyl group  $\text{R}^1\text{CO}$  in structure (1) represents a  $\text{C}_{10}$  to  $\text{C}_{14}$  acyl group.

4. A composition according to any one of claims 1 to 3, in which the acyl glycolate is present in an amount from 15 to 30% by weight.

5. A composition according to any one of claims 1 to 4, in which the co-surfactant is present in an amount of 10 to 15% by weight.

6. A composition according to any one of claims 1 to 5, which further comprises a quaternised ammonium hydroxy ethyl cellulose polymer.

7. Method of cleansing skin or hair using a composition according to any one of claims 1 to 6.

8. Use of a composition according to any one of claims 1 to 6 as a skin or hair cleansing composition.

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## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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<b>(21) International Application Number:</b> PCT/EP94/00278 <b>(22) International Filing Date:</b> 29 January 1994 (29.01.94) <b>(30) Priority Data:</b> 9302130.1 3 February 1993 (03.02.93) GB <b>(71) Applicant (for AU BB CA GB IE LK MN MW NZ SD only):</b> UNILEVER PLC (GB/GB); Unilever House, Blackfriars, London EC4P 4BQ (GB). <b>(71) Applicant (for all designated States except AU BB CA GB IE LK MN MW NZ SD):</b> UNILEVER N.V. (NL/NL); Weena 455, NL-3013 AL Rotterdam (NL). <b>(72) Inventor:</b> BOWSER, Paul, Anthony; Dorset House, Latchford Road, Gayton, Wirral, Merseyside L60 3RW (GB). <b>(74) Agent:</b> BRYANT, Tracey; Unilever plc, Patent Division, Colworth House, Sharnbrook, Bedford MK44 1LQ (GB).		<b>(81) Designated States:</b> AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, ES, FI, GB, HU, JP, KP, KR, KZ, LK, LU, LV, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SK, UA, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>  <b>(88) Date of publication of the international search report:</b> 13 October 1994 (13.10.94)
<b>(54) Title:</b> CLEANSING COMPOSITION		
<b>(57) Abstract</b>  The invention provides a cleansing composition, which comprises in addition to water, (a) from 10 to 30 % by weight of one or more C <sub>6</sub> to C <sub>16</sub> acyl glycolates and (b) from 5 to 25 % by weight of one or more co-surfactants, such as acyl taurates, isethionates, sarcosinates and sulphosuccinates. The cleansing compositions are primarily intended to be used as personal washing products, such as facial wash foams, bath foams and hair shampoos.		

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## INTERNATIONAL SEARCH REPORT

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According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 5 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP,A,0 224 796 (KAO CORPORATION) 10 June 1987	1-4,7,8
Y	see page 3, line 5 - page 4, line 2 see page 5 - page 6; example 1; table 1 ---	6
Y	GB,A,2 245 585 (KAO CORPORATION) 8 January 1992 see page 27 - page 28; example 6 ---	6
A	US,A,3 728 447 (OSIPOW L. ET AL) 17 April 1973 cited in the application see column 6, line 10 - line 31 see column 6; example 5 ---	1
A	US,A,4 301 820 (CANNELL D.W. ET AL) 24 November 1981 see claims 1-5 ---	1
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Date of the actual completion of the international search

23 August 1994

Date of mailing of the international search report

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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A	US,A,4 946 832 (GOODE S.T. ET AL) 7 August 1990 see column 10, line 50 - line 70 see column 11, line 34 - line 42 see claims 1-3 ---	1
A	LU,A,23 788 (UNILEVER N.V.) 14 March 1967 see page 3, line 13 - line 24 see page 3, line 31 - page 4, line 3 see page 7; example 2 ---	1
A	EP,A,0 242 792 (KAO CORPORATION) 28 October 1987 see page 4, paragraph 4 - page 6, paragraph 3 see page 10, paragraph 2 -----	1



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International Application No

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